

CLAIMS

1. A high-impedance substrate comprising a first layer or sheet (1) made of insulating material, having a first and a second face in the form of a lower face and an upper face (6), the substrate comprising conductor patterns (3) mechanically linked to the substrate, characterised in that, some of the conductor patterns (3) mechanically linked to the substrate are associated with a magnetic tile (5) placed on or above one of the two faces of the substrate, and in that at least one electrical interconnection (13) puts two points (9, 11) in electrical contact distinct from one another of a conductor pattern (3) mechanically linked to the substrate, this conductor pattern (3) having an assigned magnetic tile (5), passing above said magnetic tile (5) associated with said conductor pattern (3) mechanically linked to the substrate.

2. The high-impedance substrate as claimed in Claim 1 characterised in that conductor patterns (3) are constituted by conductive tracks deposited on one and/or the other of the upper (6) or lower faces of the substrate.

3. The high-impedance substrate as claimed in Claim 1 characterised in that conductor patterns (3) are constituted by conductive tracks deposited on one and/or the other of the upper (6) or lower faces of the substrate and together forming an electrical circuit with electronic components (7).

4. The high-impedance substrate as claimed in Claim 3 characterised in that the electronic components (7) are elements having a resistance value and a capacity value.

5. The high-impedance substrate as claimed in Claim 4 characterised in that the electronic components (7) comprise one or more active elements having a capacity value which can vary as a function of the value of an electrical variable applied to this or to these active elements.

6. The high-impedance substrate as claimed in any one of Claims 1 to 5, characterised in that it comprises a second layer or sheet (2), this second layer or sheet (2) having an upper face opposite the lower face of the first layer or sheet (1), and a lower face and in that a part (32) at least of each of the patterns (3) is mechanically linked to one and/or the other of the upper and lower faces of said second sheet or layer (2).

7. The high-impedance substrate as claimed in any one of Claims 1 to 5, characterised in that it comprises a second layer or sheet (2), this second layer or sheet (2) having an upper face opposite the lower face of the first layer or sheet (1), and a lower face and in that the entirety of the patterns (3) is mechanically linked to one and/or the other of the

upper and lower faces of said second sheet or layer (2).

8. The high-impedance substrate as claimed in any  
5 one of claims 3 to 5, characterised in that it  
comprises a second layer or sheet (2), this second  
layer or sheet (2) having an upper face opposite the  
lower face of the first layer or sheet (1), and a lower  
face and in that the totality of the conductor patterns  
10 (3) as well as the totality of the electronic  
components forming an electrical circuit with these  
patterns (3) are mechanically linked to the one and/or  
the other of the upper and lower faces of said second  
sheet or layer (2).

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9. The high-impedance substrate as claimed in any  
one of Claims 1 to 8, characterised in that it further  
comprises an earth plane (4) situated underneath the  
first layer or sheet (1) opposite the lower face of  
20 said first layer or sheet (1).

10. The high-impedance substrate as claimed in any  
one of claims 6 to 8, characterised in that it further  
comprises an earth plane situated underneath the second  
25 layer or sheet (2) opposite the lower face of said  
second layer or sheet (2).

11. The high-impedance substrate as claimed in any  
one of claims 6 to 8, characterised in that it further  
30 comprises an earth plane situated between the first (1)

and second (2) layers or sheets (1, 2) opposite the lower face of said first layer or sheet (1).

12. The high-impedance substrate as claimed in  
5 Claim 9, characterised in that the earth plane is constituted by plating of the lower face of the first layer or sheet (1).

13. The high-impedance substrate as claimed in  
10 Claim 10, characterised in that the earth plane is constituted by plating of the lower face of the second layer or sheet (2).

14. The high-impedance substrate as claimed in any  
15 one of Claims 1 to 8, characterised in that it further comprises an earth plane (4) situated above the first layer or sheet (1) opposite the upper face of said first layer or sheet (1).

20 15. The high-impedance substrate as claimed in Claim 14, characterised in that the earth plane is constituted by metallisation of the upper face of the first layer or sheet (1).

25 16. The high-impedance substrate as claimed in any one of Claims 1 to 15, characterised in that the magnetic tiles (5) are mechanically linked to the upper face of the first layer or sheet (1).

30 17. The high-impedance substrate as claimed in any one of Claims 1 to 16, characterised in that it

comprises a plurality of electrical interconnections (13) each putting two distinct points ( $9_0$ ,  $9_{n-1}$ ,  $11_1$ ,  $11_n$ ) in electrical contact with one or the other of the conductor pattern (3) mechanically linked to the substrate passing above said magnetic tile (5) associated with said pattern, the conductor pattern (3) and the interconnections (13) together forming a solenoid around the magnetic tile (5).

10           18. The high-impedance substrate as claimed in any one of Claims 1 to 16, characterised in that patterns (3) with which a magnetic tile (5) is associated each comprise a plurality of electrical interconnections (13) each putting two distinct points ( $9_0$ ,  $9_{n-1}$ ,  $11_1$ ,  
15    $11_n$ ) in contact electrical with one another of the conductor pattern (3) mechanically linked to the substrate passing above said magnetic tile (5) associated with said pattern (3), a first part of the conductor pattern and the interconnections (13) together  
20 forming a solenoid around the magnetic tile (5), a second part of the pattern forming with capacitive and or resistive elements a circuit connecting said capacitive and/or resistive elements in parallel or in series on the solenoid.

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          19. The high-impedance substrate as claimed in any one of Claims 1 to 18, characterised in that the magnetic tiles are made of rubber or plastic material loaded with a magnetic material powder.

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20. The high-impedance substrate as claimed in Claim 19, characterised in that the volume fraction of magnetic material powder of the rubber or of the plastic material forming the magnetic tiles is greater  
5 than 30%.

21. The high-impedance substrate as claimed in any one of Claims 1 to 18, characterised in that the magnetic tiles are made of a material constituted by a  
10 stack of magnetic and insulating layers.

22. The high-impedance substrate as claimed in any one of Claims 1 to 19, characterised in that the cover rate of the face carrying the magnetic tiles per said  
15 magnetic tiles is greater than 10%.

23. The high-impedance substrate as claimed in any one of Claims 1 to 19, characterised in that the cover rate of the face carrying the magnetic tiles per said  
20 magnetic tiles is greater than 50%.